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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/043,171	03/12/98	MCLAUGHLIN S	36-1136

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EXAMINER	
AZAD,A	
ART UNIT	**PAPER NUMBER**
2741	3

DATE MAILED: 10/20/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/043,171	Applicant(s) McLaughlin et al.
	Examiner ABUL K. AZAD	Group Art Unit 2741

☒ Responsive to communication(s) filed on *Mar 12, 1998* .

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-15* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-15* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☒ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____ .

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *1*

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Specification

1. The following guidelines illustrate the preferred layout and content for patent applications. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

The following order or arrangement is preferred in framing the specification and, except for the reference to "Microfiche Appendix" and the drawings, each of the lettered items should appear in upper case, without underlining or bold type, as section headings. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) Title of the Invention.
(b) Cross-References to Related Applications.
(c) Statement Regarding Federally Sponsored Research or Development.
(d) Reference to a "Microfiche Appendix" (see 37 CFR 1.96).
(e) Background of the Invention.
    1. Field of the Invention.
    2. Description of the Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(f) Brief Summary of the Invention.
(g) Brief Description of the Several Views of the Drawing(s).
(h) Detailed Description of the Invention.
(I) Claim or Claims (commencing on a separate sheet).
(j) Abstract of the Disclosure (commencing on a separate sheet).
(k) Drawings.
(l) Sequence Listing (see 37 CFR 1.821-1.825).

2. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 4, 5, 8 and 15 rejected under 35 U.S.C. 102(b) as being anticipated by Masaki et al. (0 385 444).

As per claim 1, Masaki teaches, "a method of generating a synthetic waveform output corresponding to a sequence of substantially similar cycles," comprising the steps of:

"(a) generating a synthetic waveform sample" (col. 2, line 46 to col. 3, line 1)

"(b) generating a successive waveform sample from said synthetic waveform sample and data defining the transformation followed by said cycles in the temporal vicinity of said synthetic waveform sample" (col. 4, lines 28-43)

"(c) designating said successive waveform sample as a synthetic waveform sample and repeating step (b)" (col. 4, lines 36-43)

"(d) repeating step (c) a plurality of times to generate a sequence of said successive waveform samples corresponding to a plurality of said cycles" (col. 4, lines 36-43)

"(e) outputting the samples of said sequence to generate a waveform" (col. 4, lines 44-47)

As per claim 3, Masaki teaches, "in which said data defining said definition does so by reference to a predetermined reference waveform sequence" (col. 2, lines 46-55)

As per claim 4, Masaki teaches, "in which said reference waveform sequence comprises a stored speech waveform" (col. 2, lines 46-55)

As per claim 5, Masaki teaches, "in which said steps (a) and (b) comprise generating a plurality of values representing said waveform sample values as a point in a multidimensional space in which corresponding portions of successive said cycles are substantially superposed" (Abstract, col. 2, lines 46 to col. 4, lines 47)

As per claim 8, Masaki teaches, "in which said step (b) comprises calculating said transformation form a set of stored waveform values" (col. 4, lines 24-52)

As per claim 15, Masaki teaches, "synthesis apparatus arranged to perform the method of claim 1" (col. 2, line 46 to col. 3, line 47)

5. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Kohut et al. (4,022,974).

As per claim 12, Kohut teaches, "a method of synthesis of a voiced speech sound comprising calculating each new output value from the previous output value using data modeling the evolution, over a short time interval, of the voiced speech sound to be synthesised" (col. 2, line 56 to col. 3, line 38)

6. Claims 13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirokawa et al. (High Quality Speech Synthesis System Based on Waveform Concatenation of Phoneme Segment).

As per claim 13, Hirokawa teaches, "a method of conceiting two cyclical sounds, comprising progressively interpolating between pairs of values of said sounds at corresponding points within the cycle of each of said sounds" (Paragraph 6.4)

As per claim 14, Hirokawa teaches, "a method of synthesising a cyclical sound intermediate between two other cyclical sounds, . . . of the interpolated waveform; and calculating each successive output value from a previous output value using said evolution model" (Paragraph 6.4)

7. Claims 1, 3-11, and 15 are alternatively rejected under 35 U.S.C. 102(b) as being anticipated by Mindlin et al. (Topological analysis and synthesis of chaotic time series).

As per claim 1, Mindlin teaches, "a method of generating a synthetic waveform output corresponding to a sequence of substantially similar cycles," comprising the steps of:

"(a) generating a synthetic waveform sample" (abstract, generating original chaotic data set)

"(b) generating a successive waveform sample from said synthetic waveform sample and data defining the transformation followed by said cycles in the temporal vicinity of said synthetic waveform sample" (see section 4. Embedding)

"(c) designating said successive waveform sample as a synthetic waveform sample and repeating step (b)" (section 4. Embedding)

"(d) repeating step (c) a plurality of times to generate a sequence of said successive waveform samples corresponding to a plurality of said cycles" (section 4. Embedding)

"(e) outputting the samples of said sequence to generate a waveform" (section 10. Conclusion)

As per claim 3, Mindlin teaches, "in which said data defining said definition does so by reference to a predetermined reference waveform sequence" (Page 230, Paragraph 5)

As per claim 4, Mindlin teaches, "in which said reference waveform sequence comprises a stored speech waveform" (Page 230, Paragraph 4)

As per claim 5, Mindlin teaches, "in which said steps (a) and (b) comprise generating a plurality of values representing said waveform sample values as a point in a multidimensional space in which corresponding portions of successive said cycles are substantially superposed" (Page 230, Paragraph 2)

As per claim 6, Mindlin teaches, "in which said data defining said transformation does so by reference to a predetermined reference waveform sequence and the transformation approximates that which would transform a first displacement vector, extending from a first time point . . . on said waveform sequence to a corresponding second point on the waveform to be synthesised" (Page 235, 2nd Paragraph)

As per claim 7, Mindlin teaches, "in which a given successive waveform sample is derived in accordance with data from a point on said reference waveform sequence at a position within a said cycle which corresponds to that of said given success waveform sequence offset in time therefrom" (section 3, Close returns)

As per claim 8, Mindlin teaches, "in which said step (b) comprises calculating said transformation form a set of stored waveform values" (Page 236, col. 1, 2nd Para to col. 2, 1st Para)

As per claim 9, Mindlin teaches, "in which the initial performance of said step (a) to initial synthesis of said waveform comprises a step of selection of an initial value which differs from a previous initial value selected on a previous synthesis of said waveform" (section 3. Close returns)

As per claim 10, Mindlin teaches, "in which said selection step comprises applying a pseudo random number generation algorithm to select value" (Page 235, 1st Para)

As per claim 11, Mindlin teaches, "in which said step of selection comprises referring to a stored waveform sample value and calculating a synthesised initial waveform value similar but different to said stored waveform value" (Page 236)

As per claim 15, Mindlin teaches, "synthesis apparatus arranged to perform the method of claim 1" (see section 1. Introduction, and section 2. Summary of steps)

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 2 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Mindlin et al. as applied to claim 1 above.

As per claim 2 and 12, Mindlin does not explicitly teach waveform comprises a voiced speech. However Mindlin does teach periodic orbits (Page 237). Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to use a voice speech signal in Mindlin because voice is a short term periodic signal, which will give a practical application of the theory.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abul K. Azad whose telephone number is **(703) 305-3838.** If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth, can be reached at **(703) 308-4825.**

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 305-9508 (for informal or draft communications, please label

"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is **(703)305-3900.**

Abul K. Azad

October 19, 1999

Richemond Dorvil
Primary Examiner